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БУКОВИНСЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ»

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morphological studies promoting solution of an important medical-social issue – improvement of the methods of prevention, early diagnostics and effective surgical correction of congenital defects and treatment of the acquired diseases of the human mandible. Morphological description of the maxillofacial structures and peculiarities of development of the mandible in particular, does not keep pace with up-to-date requirements of practical medicine.

The aim of the study is to determine the sources and terms of origin, developmental peculiarities and dynamics of ossification of the mandible during the prenatal period of human ontogenesis.

Materials and methods. The research was carried out on the specimens of 30 embryos, 30 pre-fetuses and 60 human fetuses at the Municipal Medical Institution «Chernivtsi Morbid Anatomy Bureau» according to the agreement on collaboration.

Results. Osteogenous islets are found in embryos 10,0-11,0 mm of PCL (the middle of the 6th week of the intrauterine development). These are the areas of mesenchyme hardening located on both sides of the cartilaginous mandibular anlages. The cellular elements in their content are characterized by other forms of cells and nuclear-cytoplasmic correlation in them. The degree of intensity of the osteogenous anlages decreases in the distal direction, and they are lacking in the areas of ventral extremities of Meckel's cartilage. At the beginning of the pre-fetal period of the intrauterine development the submental nerve is detected close to the inferior border of Meckel's cartilage in the point of the primary ossification center of the mandible. Meckel's cartilages are delimited along the median line in the area of the chin by a thin mesenchyme layer. At the end of the 7th week of intrauterine development (pre-fetuses 17,0-22,0 mm of PCL) the rudiment of the mandible is found externally from Meckel's cartilages occurring from the adjacent mesenchyme. A small concavity of the cartilage is seen into the center of the primary ossification of the mandible, followed by its ossification along the whole cartilage. At the end of the 7th week of intrauterine development mandible ossification occurs not only distally from the primary center, but in the submental area as well. Due to this process Meckel's cartilage becomes surrounded by the bone along the anterior and posterior surfaces. At the same time, the process of impression of the dental lamina in the space between the cartilage and anterior bony surface of the mandible is observed. During the 8th week of the intrauterine development (pre-fetuses 21,0-30,0 mm of PCL) further ossification of the mandible occurs. It becomes visible in the area of its rami.

Conclusions. 1. During the 7th week of development (pre-fetuses 14,0-20,0 mm of PCL) the maxillary processes maximum approach the lateral and medial nasal ones; in pre-fetuses 20,0 mm of PCL they join the frontal spindle forming the facial structures (upper jaw and lip, vestibule of the oral cavity, rudiments of dental laminas, and rudiments of dental buds in its distal portions). Osteogenous islets, rudiments of the mimic and masticatory muscles, blood vessels are formed. 2. During the 8th week of development the osseous tissue of the mandible is formed, the alveolar processes are shaped. 3. The oral and nasal cavities are isolated in 9-10-week pre-fetuses (33,0-40,0 mm of PCL), the mass of the osseous tissue increases in both jaws, the enamel organs are detached, the angles and rami formed by the hyaline cartilaginous tissue of the mandible are determined, the rudiments of the temporomandibular joints are already seen. 4. During the 11th week of development the osseous base of both jaws become formed. Till the end of the 12th week the osseous tissue begins to replace the hyaline cartilage of the mandibular rami, and the articular heads are formed in the portion of their proximal ends.

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INVESTIGATION OF THE PAPILLARY MUSCLES OF THE HUMAN'S HEART LEFT VENTRICLE BY MICROSCOPIC METHOD

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Introduction. Ukraine ranks first in the prevalence of cardiovascular diseases and mortality due to them in recent years. Therefore, the increased interest in the structural and functional features of the internal relief of the ventricles of the human heart remains relevant. The normal functioning

of the heart depends, first of all, on the mutually coordinated work of its structural components, a deviation in the structure of which leads to a violation of the hemodynamic processes of the heart. Also, to identify the structural changes that occur with heart pathology, data on its normal morphological structure are necessary.

The aim of the study was to examine the microscopic structure of the papillary muscles of the left ventricle of the human heart.

Material and methods. Material for the study were the papillary muscles of the left ventricles of 15 hearts of people who died from non-cardiac pathology. The methods of light microscopy and the immunohistochemical method were used for the morphological study.

Results. Studies performed using the microscopic method showed that the papillary muscles are lined externally with a single layer of endotheliocytes. The presence of endothelial cells was also confirmed by an immunohistochemical investigation, which showed a positive reaction for CD 34. Endothelial cells formed connections in the form of a chain. The brown color that accompanied the positive reaction corresponded either to the contours of the cells or their only weakly labeled nuclei. The subendothelial layer is formed by loose fibrous connective tissue with elastic and collagen fibers and cells of the fibroblastic row located in it. Contractile cardiomyocytes formed the basis of papillary muscles. Upon microscopic examination, cardiomyocytes had an elongated cylindrical shape, were connected to each other with the help of intercalated discs, anastomosed and formed a three-dimensional network. Centrally located bundles of cardiomyocytes in the thickness of the papillary muscles mainly had a transverse direction, and the longitudinal muscle bundles were located on the periphery of the papillary muscles and headed towards the apex, and in the apex, gradually approaching each other, arc-likely connected or formed an acute angle. They continued to the base of the chordae tendineae for a short distance. In the apical parts of the papillary muscles, in the places where the chordae tendineae depart from them, bundles of collagen fibers were also found, which alternated with the muscle bundles and formed the basis of the chordae tendineae. Bundles of cardiomyocytes separated by layers of loose fibrous connective tissue, in which blood vessels of the microcirculatory bed passed. The immunohistochemical study showed the highest expression of the Anti-Human Smooth Muscle Actin marker in the muscular tunics of blood vessels located among the cells of the striated cardiac muscle tissue or in the subendothelial layer. Besides, among contractile cardyomyocytes identified the elements of the conduction system of the heart. In sections of the papillary muscles, an immunohistochemical study revealed a positive level of expression of the Anti-Human Collagen IV marker, which is explained by the presence of type IV collagen in the basement membranes of the sarcolemma, which surrounded cardiomyocytes. The basement membrane covering the surface of the cardiomyocyte is a fibrillar-supporting complex of complex lipids, proteoglycans and type IV collagen. It comes into direct contact with the intercellular space, capillary walls and collagen fibers.

Conclusions. Thus, further in-depth study of the morphology of the structural components of the internal relief of the human heart ventricles will improve methods for diagnosing malformations and heart diseases and understanding the mechanisms of complications. It will also allow the use of these data in cardiology and cardiac surgery in the development of a complex of therapeutic and preventive methods to prevent possible hemodynamic disorders, as well as in reconstructive heart surgery.

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FUNDAMENTAL MODEL FOR THE CLASSIFICATION OF TOPOGRAPHY OF THE HUMAN MANDIBULAR CANAL WITH BONE ATROPHY CAUSED BY LOSS OF THE MASTICATORY TEETH

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Introduction. When teeth are lost, not only the collar part of the jaw undergo pronounced pathological changes, but also the neurovascular roots of the same name with reflection on the